LED PHOTOREACTORS

Annular

Annular lamp

LED technology

Adjustable radiation intensity

The equipment

Apria Systems has designed a series of flexible annular photoreactors with **LED technology.** We offer a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

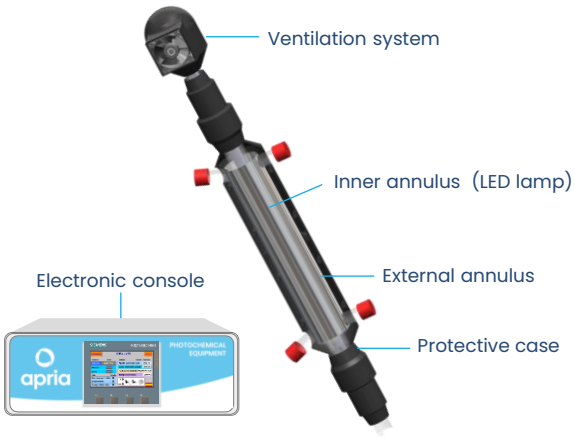
Each photoreactor has **two concentric annulus**, where the fluid to be treated flows in the external and the lamp is in the inner one (LEDs arranged in 4 strips).

The lamp can include up to two **different types of light**.

Each kind of light has independent control, and its radiation **intensity can be regulated**, offering an adjustment to the needs of the treatment.

The **temperature of the LEDs is monitored** and controlled through a system of forced air convection, allowing to maximize their efficiency and lifetime.

Elements of the system



Operation

1. Introduce the fluid in the reactor
2. Turn-on the electronic console
3. Select the working type of light, adjust its radiation intensity, and switch-on the lamp
4. Perform the treatment

We offer a wide range of alternatives to adjust our equipment to your needs

Reactor characteristics

Operation mode	Continuous / recirculation
Configuration	Single / double wavelength
Irradiated volume (mL)	250 – 1,000
Flowrate (m^3/h)	Up to 1
Number of LEDs	16 - 80
Adjustable radiation intensity	Yes, through an electronic console with PLC
Refrigeration system for the LEDs	Forced air convection
Optional items	Automatization / dosing systems / feeding tank / jacketed reactor / magnetic stirring / online measurements (O_2, pH, etc.) / pumping / system to recover the photocatalyst / temperature control

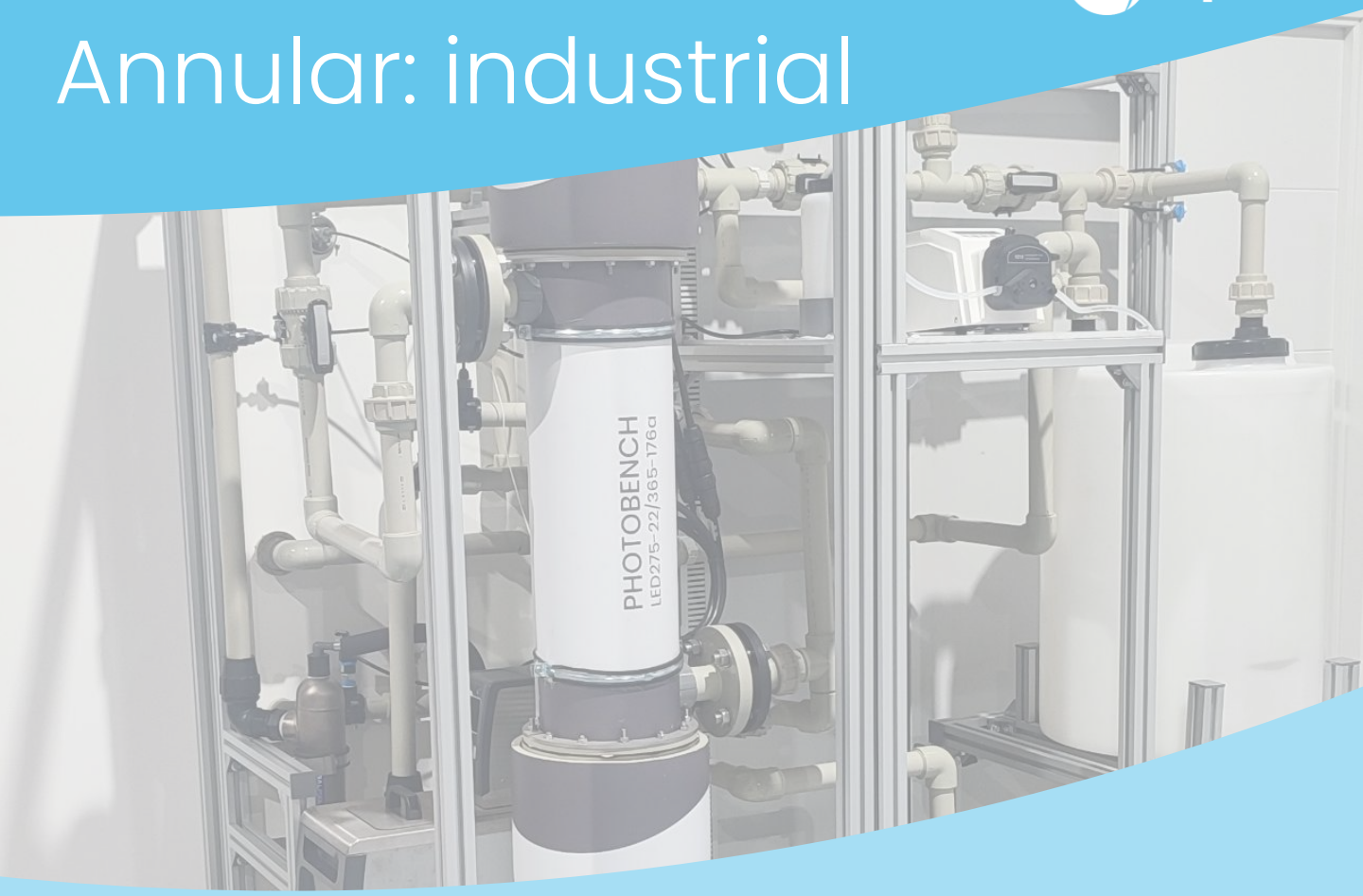
Source of light

Type of light	λ (nm)	λ_{peak} (nm)	Φ / LED
UV-C	263 – 268	265	100 mW
	268 – 280	275	
UV-B	295 – 305	300	32 mW
UV-A	365 – 370	365	1,200 mW
Violet	400 – 410	405	1,260 mW
White	400 – 700	450	315 lm
Blue	453 – 460	457	1,350 mW
Green	520 – 530	523	450 mW
Yellow	587 – 598	590	470 lm
Red	618 – 630	623	935 mW
NIR	835 – 875	850	930 mW
FIR	920 – 960	940	1,350 mW

For more information: comercial@apriasystems.es

LED PHOTOREACTORS

Annular: industrial



Annular lamps

LED technology

Adjustable radiation intensity

The equipment

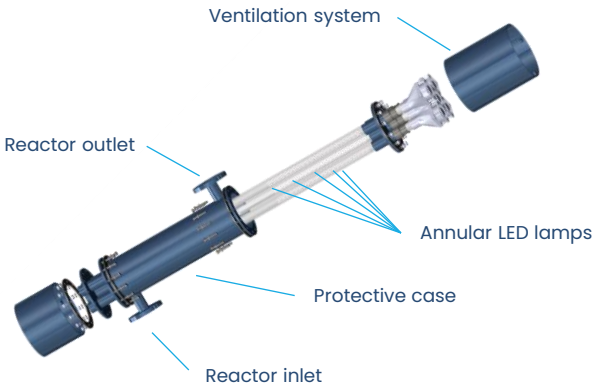
Apria Systems has designed a series of flexible industrial annular photoreactors with **LED technology.** We offer a wide range of **tailor-made** models to adapt the equipment to the needs of our clients.

Each photoreactor has several **annular lamps** (LEDs arranged in 4 strips surrounded by a glass annulus) with up to two **different types of light** in each lamp.

Each kind of light has independent control, and its radiation **intensity can be regulated**, offering an adjustment to the needs of the treatment.

The **temperature of the LEDs is monitored** and controlled through a system of forced air convection, allowing to maximize their efficiency and lifetime.

Elements of the system



Operation

1. Introduce the fluid to be treated in the reactor
2. Turn-on the electronic cabinet
3. Select the working type of light, adjust its radiation intensity, and switch-on the lamps
4. Perform the treatment

We offer a wide range of alternatives to adjust our equipment to your needs

Reactor characteristics

Operation mode	Continuous / recirculation
Configuration	Single / double wavelength
Irradiated volume (L)	Up to 15
Flowrate (m^3/h)	Up to 5
Number of LEDs	Up to 440
Adjustable radiation intensity	Yes, through an electronic cabinet with PLC
Refrigeration system for the LEDs	Forced air convection
Automatic shutdown system	In the absence of inlet flow or high temperature values
Case material	Polypropylene / stainless steal
Optional items	Automatization / dosing systems / feeding tank / online measurements (O_2, pH, etc.) / pumping / system to recover the photocatalyst / temperature control

Source of light

Type of light	λ (nm)	λ_{peak} (nm)	Φ / LED
UV-C	263 – 268	265	100 mW
	268 – 280	275	
UV-B	295 – 305	300	32 mW
UV-A	365 – 370	365	1,200 mW
Violet	400 – 410	405	1,260 mW
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